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Commissioner

CERTIFIED MAIL/RRR:

7017-1450-001-4504

July 1, 2019

John Walls
Bordentown Water Department
324 Farnsworth Avenue
Bordentown, NJ 08505

**Re: Bordentown Water Department - PWSID No. NJ0303001
Corrosion Control Study Required
Letter No. LCR180001**

Dear John Walls:

In response to Bordentown Water Department's (Bordentown) lead action level exceedances since 2nd half of 2017, the Bureau of Water System Engineering (Bureau) issued a Corrosion Control Treatment (CCT) Recommendation Approval letter dated July 25, 2018 and Temporary Treatment Approval dated July 31, 2018 for the use of a Klenphos 400 chemical feed. However, in response to continued lead action level exceedances and review of water quality parameters, **the Bureau has determined that a corrosion control study and CCT Recommendation re-submission are required in accordance with §141.82(h) of U.S. Environmental Protection Agency's (EPA) Lead and Copper Rule.**

Water quality parameters following the installation of CCT are not being optimized. Entry point to the distribution samples collected on October 10, 2018 and December 5, 2018 indicate pH values of 8.06 and 7.02 respectively. In addition, distribution system samples collected on May 1, 2019 indicated a wide range of pH values from 7.64 to 9.39. Orthophosphate concentration ranges from 0.099 mg/l on October 10, 2018 to 0.344 mg/l on November 21, 2018 at the entry point to the distribution system.

The Bureau has determined that a CCT demonstration study is required. **The CCT demonstration study should commence by August 15, 2019 and must be completed by August 15, 2020. Bordentown shall submit an outline defining tasks and associated timeframes for the completion of the CCT demonstration study within thirty (30) days from receipt of this letter.**

The following table summarizes corrosion control study requirements associated with the Lead and Copper Rule.

Corrosion Control Study Component	LCR Requirements
Corrosion Control Study Tools	Systems must evaluate the effectiveness of each CCT specified in §141.82(c)(1) and, if appropriate, combinations of treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry, and distribution system configuration (§141.82(a) and (c)(2)).
Monitoring Requirements	Systems must measure the following water quality parameters in any tests before and after evaluating the CCTs: Lead, copper, pH, alkalinity, calcium, conductivity, orthophosphate (when an inhibitor containing a phosphate compound is used), silicate (when an inhibitor containing a silicate compound is used), and water temperature (§141.82(c)(3)).
Identification of Constraints	Systems must identify all chemical or physical constraints that limit or prohibit the use of a particular CCT and document such constraints with at least one of the following (§141.82(c)(4)): <ul style="list-style-type: none"> • Data and documentation showing that a particular CCT has adversely affected other water treatment processes when used by another water system with comparable water quality characteristics; and/or • Data and documentation demonstrating that the water system has previously attempted to evaluate a particular CCT and has found that the treatment is ineffective or adversely affects other water quality treatment processes.
Effects on Other Treatment Processes	Systems must evaluate the effect of the chemicals used for CCT on other water quality treatment processes (§141.82(c)(5)).
Reporting	On the basis of an analysis of the data generated during each evaluation, the water system must recommend to the primacy agency in writing the treatment option that the corrosion control studies indicate constitutes OCCT for that system. Systems must provide a rationale for their recommendation along with all supporting documentation (§141.82(c)(6)).

In addition to the above requirements, Bordentown must conduct sufficient sequential monitoring (Lead Profiling) and Pipe Scale Analysis to determine high levels of lead at the sampling sites and evaluate the following:

- Chloride-to-Sulfate Mass ratio for the Entry Point and Distribution system
- Effect of the chemicals used for CCT on all Bordentown's consecutive systems.
- Manganese and Iron Deposit Potential

A report must be submitted to the Bureau at the conclusion of the demonstration study. The CCT report should include the following:

Executive Summary

I. Introduction

II. Project Background

III. Review of Existing Information

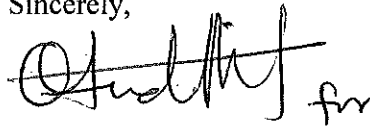
- A. Water System Information (provide a system schematic)
- B. Water Quality Data

- 1. Raw Water
- 2. Entry Point
- 3. Distribution System
- 4. Tap
- C. Pipeline and Plumbing Materials
- D. Summary of Water Quality Complaints
- E. Analogous System Information
- IV. Special Studies**
 - A. Bench Scale Studies
 - 1. Methods and Materials
 - 2. Results
 - B. Pipe Loop Studies
 - 1. Methods and Materials
 - 2. Results
 - C. Partial System Testing
 - 1. Methods and Materials
 - 2. Results
- V. Potential Causes of Elevated Lead and/or Copper Levels in the System**
- VI. Identification and Assessment of Corrosion Control Alternatives**
- VII. Evaluation of Corrosion Control Alternatives**
 - A. Performance
 - B. Constraints
 - C. Recommended OCCT

For additional assistance in developing a demonstration study, please refer to §141.82(c) of EPA's Lead and Copper Rule: <https://www.epa.gov/dwreginfo/lead-and-copper-rule> or Chapter 4.1.4 and Appendix F of EPA's *OCCT Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems*: <https://www.epa.gov/sites/production/files/2016-03/documents/occtmarch2016.pdf>.

If you have any questions or concerns with this finding, please feel free to contact me at 609-292-2957. When contacting the Department please reference the PWSID No. NJ0303001 and Letter No. LCR180001.

Sincerely,



Joseph Mattle, Supervisor
Bureau of Water System Engineering

cc: Southern Bureau of Water Compliance and Enforcement
Matthew Peters, BWSE – Engineering
Nasir Butt, BWSE – Engineering
Minnie Best, BWSE – Water System Assistance
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Lead Team